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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/587,976

08/03/2006

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1391.1073

7110

21171 7590 08/03/2009
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EXAMINER

KAU, STEVEN Y

ART UNIT

PAPER NUMBER

2625

MAIL DATE

DELIVERY MODE

08/03/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/587,976	Applicant(s) KISHIMOTO, YASUHIKO	
	Examiner STEVEN KAU	Art Unit 2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☒ Claim(s) 6, & 7-22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/4/06 & 8/3/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This is the initial office action based on the application filed on August 3, 2006, a national stage entry of PCT/JP05/04509, March 15, 2005.

Preliminary Amendment

- Applicants filed a preliminary amendment on August 3, 2006 for changing the Title to "APPARATUS FOR AND METHOD OF FORMING MULTICOLOR HALFTONE IMAGES", and amending the specification by adding text for claiming the benefit of International PCT filing date and the foreign priority date.
- Claims 1-12 are pending.

Information Disclosure Statement

2. The information disclosure statements (IDS) submitted on 12/4/2006 and 8/3/2006 are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Priority

3. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copies have been filed in parent Application N0. 10/587,976 on August 3, 2006.

Specification

4. 35 U.S.C. 112, first paragraph, requires the specification to be written in "full, clear, concise, and exact terms." The specification is replete with terms which are not clear, concise and exact. The specification should be revised carefully in order to comply with 35 U.S.C. 112, first paragraph. Examples of some unclear, inexact or verbose terms used in the specification are: first paragraph of Page 2, recite, **"When the halftone-dot images of Y, M, C, and K are superimposed, generation of a moiré stripe attributable to the cycle of dot cells must be prevented. A number of technologies that suppress generation of such a moiré stripe is known (refer to, for example, Patent Document 1 and Patent Document 2)"**, second paragraph, Page 2, recites,

FIG. 28 is a diagram showing a typical dot cell as disclosed in Patent Document 2", and second paragraph, Page 5, recites, **"A conventional method of generating a color halftone-dot image using a computerized halftone-dot image output apparatus will be explained with reference to FIG. 29"** (emphasis added by examiner). The underlined phrases are admitted as prior arts. However, there is no detail information regarding these prior art(s), i.e. Patent Document 1 and Patent Document 2. In addition, Figures 28 and 29 should be marked "Prior Art" in the disclosure because these figures are not part of the instant invention.

Claim Objections

5. Claims 6, 7-12 are objected to because of the following informalities: with respect to Claim 7, limitation recites, "disposing halftone dots in s specific halftone plate" (emphasis added by examiner). In light of the specification, the examiner believes that

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the limitation should be "disposing halftone dots in a specific halftone plate". Claims 8-12 are dependent claims to Claim 7 and are objected to because of their dependency to claim 7. Claim 6 is objected to because its limitation, recites, "...which intersect at at least ..." (emphasis added by the examiner). Appropriate correction is required.

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. Claims 7-12 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. Supreme Court precedent¹ and recent Federal Circuit decisions² indicate that a statutory "process" under 35 U.S.C. 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing. While the instant claims recite a series of steps or acts to be performed, the claim(s) neither transform underlying subject matter nor positively tie to another statutory category that accomplishes the claimed method steps, and therefore do not qualify as a statutory process. For example, Claim 7 is directed to a method of forming multicolor halftone images, steps recite, "disposing halftone dots in s specific halftone plate at a

¹ *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876).

² *In re Bilski*, 88 USPQ2d 1385 (Fed. Cir. 2008).

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predetermined pitch on the basis of a predetermined screen angle of the specific halftone plate; defining, for each of the remaining halftone plates, a right triangle such that its vertical angle is equal to a screen angle difference of 30 degrees or 45 degrees which the halftone plate has in relation to another halftone plate, and its two sides forming the vertical angle corresponds to screen angle directions of the two halftone plates; representing the ratio of the three sides of the right triangle represented by numerical values including $\sqrt{3}$ or $\sqrt{2}$, which is an irrational number, the numerical values being approximated by integral values which approximate values obtained by multiplying the numerical values by an integer; and disposing, on the basis of the right triangle having a ratio approximated by integral values, respective halftone dots of the two halftone plates at a pitch equal to the predetermined pitch along the screen angle directions of the two halftone plates corresponding to the two sides forming the vertical angle.” The applicant has not provided explicit and deliberate definitions of which particular apparatus is used for executing the steps of the method, i.e. executing steps of “disposing halftone dots in s specific halftone plate”, and “defining, for each of the remaining halftone plates”, etc., or to limit the steps of “disposing halftone dots in s specific halftone plate”, and “defining, for each of the remaining halftone plates”, etc., for transforming underlying subject matter (such as an article or material) to a different state or thing. Thus, the method of forming multicolor halftone images would be reasonably interpreted as a series of steps completely performed mentally, verbally or without a machine, i.e. a set of algorithm or a set of procedures without a machine for

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execution. Claims 8-12 are dependent claims to claim 7, and are rejected under 35 U.S.C. 101 because of their dependency to claim 7.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-5 and 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Urabe et al (US 5,270,835) in view of Ikuta (US 5,455,682).

Regarding claim 1.

Urabe discloses an apparatus (**referring to Fig. 10, a block diagram of a circuit for forming halftone image signal**) for forming multicolor halftone images including halftone plates of a plurality of colors for reproducing a colored image, wherein each halftone plate is tilted with a relative screen angular difference of 30 degrees or 45 degrees in relation to at least one of the remaining halftone plates, the apparatus comprising: a specific halftone plate (**i.e. a halftone plate is necessary for each of four colors of Cyan, Magenta, Yellow and Black, or CMYK, col 2, lines 40-45 and col 4, lines 58-65**) having halftone dots disposed at a predetermined pitch on the basis of a predetermined screen angle (**i.e. forming halftone dots with a predetermined pitch, col 3, lines 32-45 and col 6, lines 1-30**); and wherein the halftone dots are

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disposed on the basis of the ratio of the three sides of the right triangle represented by numerical values including $\sqrt{3}$ or $\sqrt{2}$, which is an irrational number, the numerical values being approximated by integral values which approximate values obtained by multiplying the numerical values by an integer (**referring to Fig. 5, col 4, lines 38-39, halftones are formed in a ratio of $m/n = 1/3$ of the right triangle angle, col 4, line 58 to col 5, line 2).**

Urabe does not disclose that the remaining halftone plates, wherein a right triangle is defined for each of the remaining halftone plates such that its vertical angle is equal to a screen angle difference of 30 degrees or 45 degrees which the halftone plate has in relation to another halftone plate, and its two sides forming the vertical angle corresponds to screen angle directions of the two halftone plates, and on the basis of the right triangle, respective halftone dots of the two halftone plates are disposed at a pitch equal to the predetermined pitch along the screen angle directions of the two halftone plates corresponding to the two sides forming the vertical angle.

In the same field of endeavor, Ikuta teaches that the remaining halftone plates (**i.e. plates of Cyan, Magenta and Black, or CMK**), wherein a right triangle is defined for each of the remaining halftone plates such that its vertical angle is equal to a screen angle difference of 30 degrees or 45 degrees which the halftone plate has in relation to another halftone plate (**referring to Figs. 14A-B, halftone plates of CMK has vertical angle is equal to the screen angle of 45 degree, col 9, lines 55-67 and col 10, lines 24-36**), and its two sides forming the vertical angle corresponds to screen angle directions of the two halftone plates (**referring to Fig. 14A, halftone dots of Cyan,**

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Magenta and Black, or CMK halftone dots indicates halftone plates of C, M, K in a right triangle relationship, col 10, lines 24-36), and on the basis of the right triangle, respective halftone dots of the two halftone plates are disposed at a pitch equal to the predetermined pitch (i.e. Pitch P of Fig. 14B) along the screen angle directions of the two halftone plates corresponding to the two sides forming the vertical angle (i.e. Fig. 14B discloses halftone dots of the tow plates, i.e. Cyan and Magenta, disposed on the based of the right triangle forming the vertical angle, col 10, line 26-36).

Having an apparatus for forming multicolor halftone images of Urabe' 835 reference and then given the well-established teaching of Ikuta' 682 reference, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus for forming multicolor halftone images of Urabe' 835 reference to include that the remaining halftone plates, wherein a right triangle is defined for each of the remaining halftone plates such that its vertical angle is equal to a screen angle difference of 30 degrees or 45 degrees which the halftone plate has in relation to another halftone plate, and its two sides forming the vertical angle corresponds to screen angle directions of the two halftone plates, and on the basis of the right triangle, respective halftone dots of the two halftone plates are disposed at a pitch equal to the predetermined pitch along the screen angle directions of the two halftone plates corresponding to the two sides forming the vertical angle as taught by Ikuta' 682 reference. The motivation for doing so would have been to effectively prevent "rosette moiré" as shown in Fig. 18, and further the services provided could easily be established for one another with predictable results.

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Regarding claim 2, in accordance with claim 1.

Urabe discloses wherein the two sides forming the vertical angle of the right triangle having the vertical angle of 30 degrees (**i.e. a vertical angle formed by two sides**) have a ratio approximated by integral values of 7:8, 19:22, or 26:30 (**i.e. referring to Fig. 5, a diagram shows an angle θ with two sides, i.e. m & n and the ratio of the two sides, i.e. m/n, col 5, lines 56-64 and 6, lines 1-30; thus, it would be obvious to choose an angle, i.e. 30 degree with a ratio of the two sides, i.e. m & n, or 7:8 for preventing/reducing moiré artifacts**).

Regarding claim 3, in accordance with claim 1.

Urabe discloses wherein the two sides forming the vertical angle of the right triangle having the vertical angle of 45 degrees have a ratio approximated by integral values of 5:7, 7:10, or 12:17 (**the same rational discussed in claim 2 above is also equally applied to Claim 3 for having 45 degree and ratio of 5:7, etc.**).

Regarding claim 4, in accordance with claim 1.

Urabe discloses wherein the specific halftone plate is a magenta (M) halftone plate, a black (K) halftone plate maintains a relative screen angular difference of 30 degrees in relation to the magenta (M) halftone plate, a cyan (C) halftone plate maintains a relative screen angular difference of 30 degrees in relation to the black (K) halftone plate, and a yellow (Y) halftone plate maintains a relative screen angular difference of 45 degrees in relation to the black (K) or cyan (C) halftone plate (**i.e. a halftone plate is necessary for each of four colors of Cyan, Magenta, Yellow and**

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Black, or CMYK, col 2, lines 40-45 and col 4, lines 58-65, and it is desirable to limit the angle within +/- 15 degrees for eliminate moiré artifacts, col 5, lines 61-64).

Regarding claim 5, in accordance with claim 4.

Urabe discloses wherein for the yellow (Y) halftone plate which hardly produces moiré (**i.e. moiré pattern caused by Yellow plate is not recognizable, col 4, lines 58-65**), when the ratio of the right triangle is represented by approximated integral values, a larger rounding error is permitted (**i.e. equation 28 of col 11, line 6-9 truncates the decimal away and thus only integer remains; thus, a larger rounding error is permitted**), and the halftone-dot arrangement pitch of the yellow halftone plate is made higher or lower than those of the remaining halftone plates, whereby the yellow halftone plate overlaps a point where the remaining three halftone plates are overlap (**i.e. since yellow halftone plate is hardly produce moiré patterns, size of pitch of yellow plate can be higher or lower than other plates and thus, yellow plate is allow to overlap other plates by nature inherent phenomenon of yellow plate**).

Regarding claim 7.

Claim 7 is directed to a method claim which substantially corresponds to operation of the device in claim 1, with method steps directly corresponding to the function of device elements in claim 1. Thus, claim 7 is rejected as set forth above for claim 1.

Regarding claim 8, in accordance with claim 7.

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Claim 8 is directed to a method claim which substantially corresponds to operation of the device in claim 2, with method steps directly corresponding to the function of device elements in claim 2. Thus, claim 8 is rejected as set forth above for claim 2.

Regarding claim 9, in accordance with claim 7.

Claim 9 is directed to a method claim which substantially corresponds to operation of the device in claim 3, with method steps directly corresponding to the function of device elements in claim 3. Thus, claim 9 is rejected as set forth above for claim 3.

Regarding claim 10, in accordance with claim 7.

Claim 10 is directed to a method claim which substantially corresponds to operation of the device in claim 4, with method steps directly corresponding to the function of device elements in claim 4. Thus, claim 10 is rejected as set forth above for claim 4.

Regarding claim 11, in accordance with claim 10.

Claim 11 is directed to a method claim which substantially corresponds to operation of the device in claim 5, with method steps directly corresponding to the function of device elements in claim 5. Thus, claim 11 is rejected as set forth above for claim 5.

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10. Claims 6 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Urabe et al (US 5,270,835) in view of Ikuta (US 5,455,682) as applied to claims 1 and 7 above, and further in view of Delabastita et al (US 5,766,807)

Regarding claim 6, in accordance with claim 1.

Urabe does not disclose wherein super cells whose line numbers are the same among all the halftone plates and which intersect at least one point are configured for each halftone plate, and the super cells are joined while the screen angles of the respective halftone plates are used as a reference.

Delabastita teaches wherein super cells (**referring to Figs. 3 & 4, which disclose a rational tangent supercell, and a complete and contiguous halftone screen by replicating the supercell, respectively**) whose line numbers are the same among all the halftone plates (**referring to Figs. 3 and 4, line numbers are the same for all plates**) and which intersect at least one point are configured for each halftone plate, and the super cells are joined while the screen angles of the respective halftone plates are used as a reference (**referring to Figs. 3 and 4 again, there are intersections, screen angles, etc., col 4, lines 33-41 and col 6, line 64 to col 7, line 27**).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the combination of Urabe' 835 reference and Ikuta' 682 reference to wherein super cells whose line numbers are the same among all the halftone plates and which intersect at least one point are configured for each halftone plate, and the super cells are joined while the screen angles of the respective

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halftone plates are used as a reference as taught by Delabastita' 807. The motivation for doing so would have been to the apparatus for forming multicolor halftone images to achieve that the tone rendering of reproductions is more predictable as from the start of the printing process and the endurance of a printing plate is substantially increased, without loss of quality in the output image (col 5, lines 13-18, Delabastita), and further it is easily implemented by one or other in the art with a predictable result.

Regarding claim 12, in accordance with claim 7.

Claim 12 is directed to a method claim which substantially corresponds to operation of the device in claim 6, with method steps directly corresponding to the function of device elements in claim 6. Thus, claim 12 is rejected as set forth above for claim 6.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven Kau whose telephone number is 571-270-1120 and fax number is 571-270-2120. The examiner can normally be reached on M-F, 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Moore can be reached on 571-272-7437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Steven Kau/
Examiner, Art Unit 2625
July 29, 2009

/David K Moore/

Supervisory Patent Examiner, Art Unit 2625